A KEY TO THE PALAEARCTIC GENERA OF THE FAMILY EURYTOMIDAE (HYMENOPTERA, CHALCIDOIDEA), WITH REVIEW OF TROPHIC ASSOCIATIONS

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Zerova, M. D. A key to the Palaearctic genera of the family Eurytomidae (Hymenoptera, Chalcidoidea), with review of trofic associations. Summary. The eurytomid wasp genera occurring in the Palaearctic Region are keyed, and their trophic preferences are reviewed.

Key words: Eurytomidae, Hymenoptera, Chalcidoidea, Palaearctic Region, genera, key, trophic associations.

Зерова, М. Д. Таблиця для визначення палеарктичних родів родини Eurytomidae (Hymenoptera, Chalcidoidea), з оглядом трофічних зв'язків. Резюме. Складено таблицю для визначення родів палеарктичних їздців-евритомід, та подано огляд їхніх трофічних зв'язків.

Ключові слова: Eurytomidae, Hymenoptera, Chalcidoidea, Палеарктична область, роди, таблиця для визначення, трофічні зв'язки.

Зерова, М. Д. Определительная таблица палеарктических родовв семейства Eurytomidae (Hymenoptera, Chalcidoidea), с обзором трофических связей. Резюме. Составлена определительная таблица родов палеарктических наездников-эвритомид, и дан обзор их трофических связей.

Ключевые слова: Eurytomidae, Hymenoptera, Chalcidoidea, Палеарктическая область, роды, определительная таблица, трофические связи.

Introduction

Chalcid wasps are a group of parasitic Hymenoptera, being very difficult for identification. This is most true for the family Eurytomidae due to the comparatively uniform morphology of species, in particular those from the genera Eurytoma and Tetramesa. Even distinguishing these genera from the representatives of the subfamilies Eurytominae and Harmolitinae is often problematic because of numerous morphological homoplasies camouflaging real taxonomic diversity.

The identification of the genera and species of Eurytomidae is always dependent on the data on their biology, since the representatives of the family are mostly monophagous or narrow oligophagous, apart from the genus *Eurytoma*, species of which are both, parasitic and phytophagous, but parasitoids predominate.

The key provided below covers 17 genera and 1 subgenera of the family Eurytomidae, which occur in the Palaearctic biogeographical region. This key also includes a supplement containing the genera discussed by the author (Zerova, 1976; 1995), but were not reported for the Palaearctic Region at the time of corresponding publications.

Also, the information about hosts and distribution of the genera of the family Eurytomidae, is given. (for detailed figures, see Zerova, 1976, 1988, 1991, 1994, 1995, 2010, 2011, 2013).

A key to the Palaearctic genera of the family Eurytomidae

1 Female and male antennae with 8-segmented funicule and 3-segmented club; 1–3-flagellar segments somewhat shorter than following segments (in *Archirileya*) and anelliform (in *Rileya*). No sexual dimorphism in antennal structure. Postmarginal vein long, almost as long as marginal. Abdomen by both sexes long and sessile. (**Subfamily Rileyinae**). .... 2.

— Female antenna with 5–7 funicle segments and 3-segmented club, in male with 4–10 segments and 3-segmented club, or without club, then funicle is 7–10-segmented; with one anellus in both sexes; sexual dimorphism in antennal structure clear. .... 3.

2 Female and male antennae with 3 short anelli, mesosoma gibbous; 3 first abdominal segments very short and displaced dorsally. .... *Rileya* Ashmead, 1888

— Female and male antennae with 3 hardly differentiated anelli, only the first anellus distinct; 3 first abdominal segments not displaced dorsaly. Mesosoma not gibbous. Body cylindrical, hind femora in male ovoidly swollen. .... *Archirileya* Silvestri, 1920

3 Female antenna with 7 flagellar segments and 3-segmented club, pubescence very short; male antenna with 10-flagellar segments without club; anellus very short in both sexes. Abdomen long, sessile; marginal vein long, much longer than postmarginal and radial veins; body red. (**Subfamily Buresiinae**). .... *Buresium* Bouček, 1970

— Female antenna with 5 or 6 flagellar segments and 3 or 2 segmented club, male antenna with 4 or 5 segmented flagellum and 3 or 2 segmented club, sometimes male flagellum is 7-segmented without club. Body black, sometimes black with yellow spots, rear yellow. .... 4.

4 Fore wings with marginal vein subrectangular or subtriangular enlarged, with attached dark spot of varying width; sometimes in some species it may be transformed into two dark spots. Female antenna with 5 flagellar segments and 3-segmented club; male antenna with 4 flagellar segments and 3-segmented club, flagellar pubescence in both sexes very short. Female and male abdomen with long petiole. Body yellow, rarely black with yellow spots. (**Subfamily Eudecatominae**) .... *Sycophila* Walker, 1871

— Fore wing with marginal vein not enlarged, and without dark spots under it. Female antenna with 5 flagellar segments and 3 segmented club, in male 5-segmented with 2-segmented club or 4-segmented with 3-segmented club, in some species male flagellum 7-segmented without club. In most cases color of body black, rarely black with yellow spots. .... 5.

5 Mesosoma not bulging, gena posterioly and ventrally rounded, non-carinate; thorax dorsally more or less flat, sometimes with some dense foveae. Abdomen elongate, usually longer than mesosoma. (**Subfamily Harmolitinae**). .... 6.

— Mesosoma bulging, gena posteriorly and ventrally more or less carinate. Metasoma not very long, more often nearly as long as mesosoma. (**Subfamily Eurytominae)** .... 11.

6 Abdominal petiole tranverse in female, with small but notably visible thorn on each side; the first funicular segment very long with lateral projection. Body black, pronotum on upper corners with small yellow spots. Metasoma as long as mesosoma. . ... *Endobia* Erdös, 1964

— Abdominal petiole in female and male without thorns; the first funicle segment without lateral projection. ....7.

7. Body length to 7–8 mm; female abdomen long, compressed laterally; body black, pronotum with great yellow spots. Female antennae with 6 segments and a little club; male antennae 7-segmented without club with very short pubescence. .... *Aiolomorphus* Walker, 1871

— Body length less than 7–8 mm very rarely 5–6 mm; female abdomen not compressed. .... 8.

8. The 5th tarsal segment enlarged, as long as three previous segments together; mandibles with two teeth; head and thorax black, abdomen brown, as long as head and mesosoma together; fore wing infumate. .... *Tetramesella* Zerova, 1974

— The 5th tarsal segment not elongate; mandibles with three teeth. .... 9.

9 Sculpture of head and thorax light, body with long hairs, brown; the species has two forms — winged and apterous. .... *Philachyra* Walker, 1871

— Sculpture of head and thorax with reticulation. .... 10.

10 Body slender, marginal vein long, usually longer than postmarginal; female antenna 5-segmented, in male 7-segmented. Propodeum nearly flat and lying on the same plane as scutellum .... *Tetramesa* Walker, 1832

— Body more robust, marginal vein as long as postmarginal. Propodeum sloping posteriorly. Female antenna, with five or six segments, male antenna 7-segmented. First funicular segment by female long and narrow. .... *Cathilaria* Burks, 1971

11 Ovipositor long, 2/3× as long as metasoma length. Marginal vein shorter than postmarginal. Female antenna with 5 segments and 3-segmented club. .... *Exeurytoma* Burks, 1971

— Ovipositor short. ....12.

12. Head and thorax with distinct metallic tint, sculpture fine, flat; stigmal vein with wide knob (figs 6–8) .... *Nikanoria* Nikolskaja, 1955

— Head and thorax without metallic tint, stigmal vein not widening.. 13.

13 First funicular segment in female elongate narrow at basal part, nearly bare, without linear sensillae; male funicle 4-segmented. .... 14.

— First funicular segments in female not narrowed in basal part, always with longitudinal linear sensilla. .... 16.

14 Funicle in female 5-segmented (fig. 13). *Systole* Walker, 1832 s. lat. ....15.

— Funicle in female 4-segmented (fig. 14) .... *Pseudosystole* Kalina, 1969

15 Thorax with fine reticulate alutaceous sculpture, without coarse punctation (exept in *Systole rugosa* Szelenyi) .... *Systole* (*Systole*) Walker, 1832

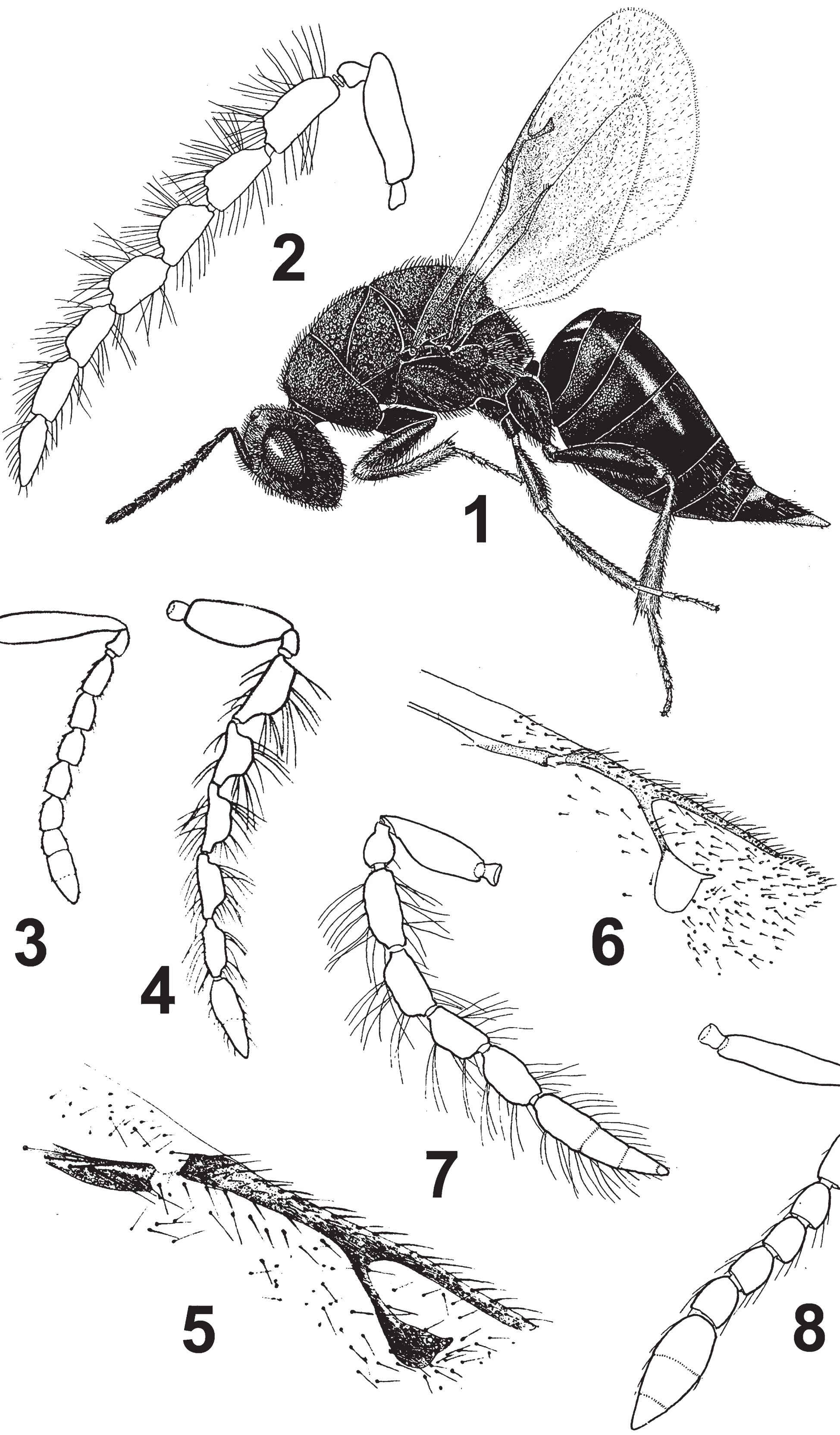
— Thorax with coarse sculpture, dorsal surface of thorax with thick pubescence .... *Systole* (*Trichosystole*) Zerova, 1978

16 Gena and lower part of temple carinate bordered; marginal vein usually long, longer than postmarginal. Thorax with umbilicate punctures. Female antennae usually 5-segmented with 3-segmented club, rearly 6-segmented with 2-segmented club; male antenna usually 5-segmented with 2-segmented club, occasionally 7-segmented, without club (figs 1–5). .... *Eurytoma* Illiger, 1807

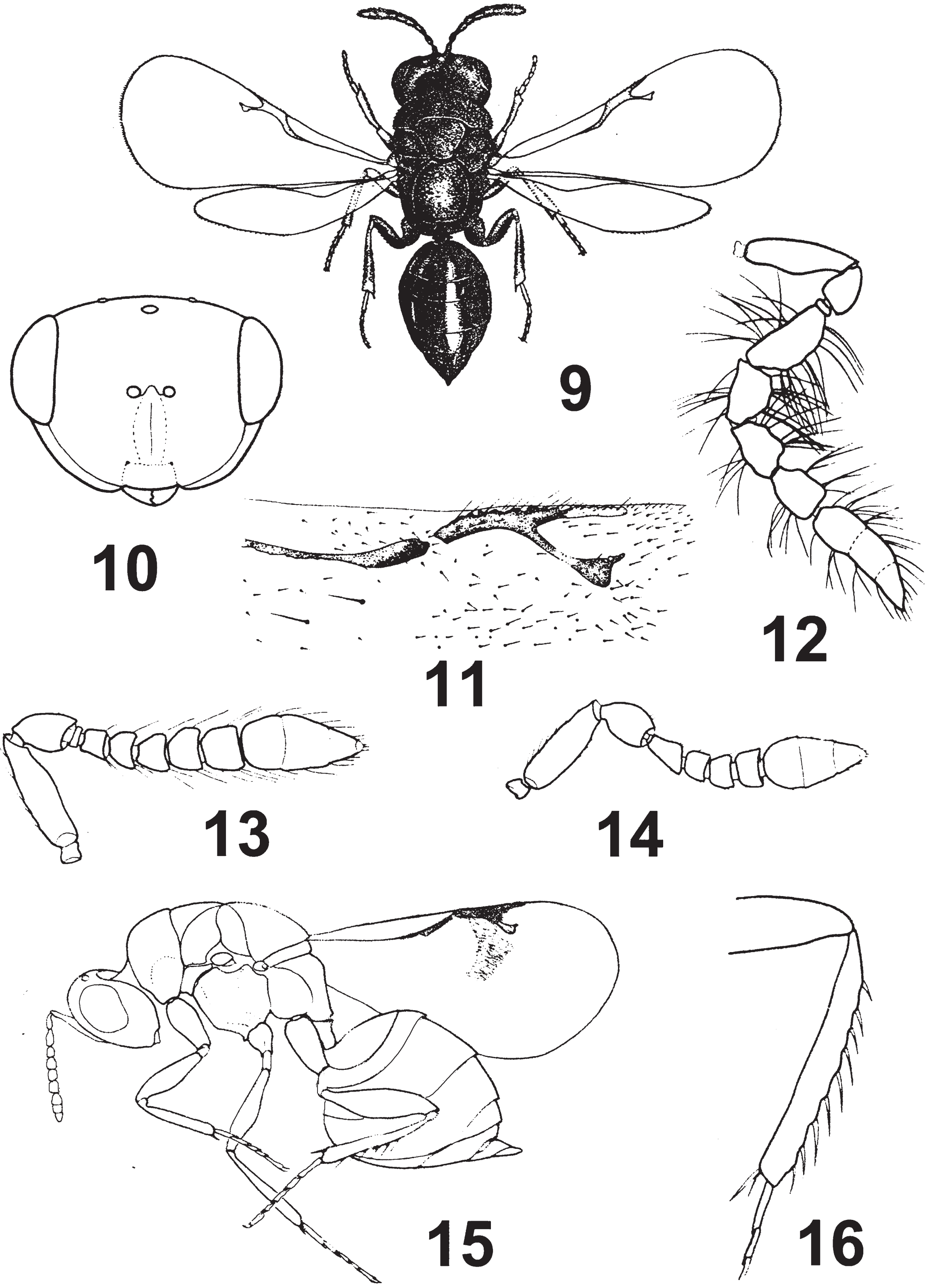
— Gena and lower part of temple flat, only in lower part sometimes with short carina; marginal vein short, usually shorter than postmarginal. Male antenna 4-segmented. ....17.

17 Head and dorsal surface of thorax without dense and dull sculpture, usually with shallow reticulation and little cells or pits; flagellar segments of male antenna with long pubescence, much longer than in female (figs 17–20). .... *Bruchophagus* Ashmead, 1888

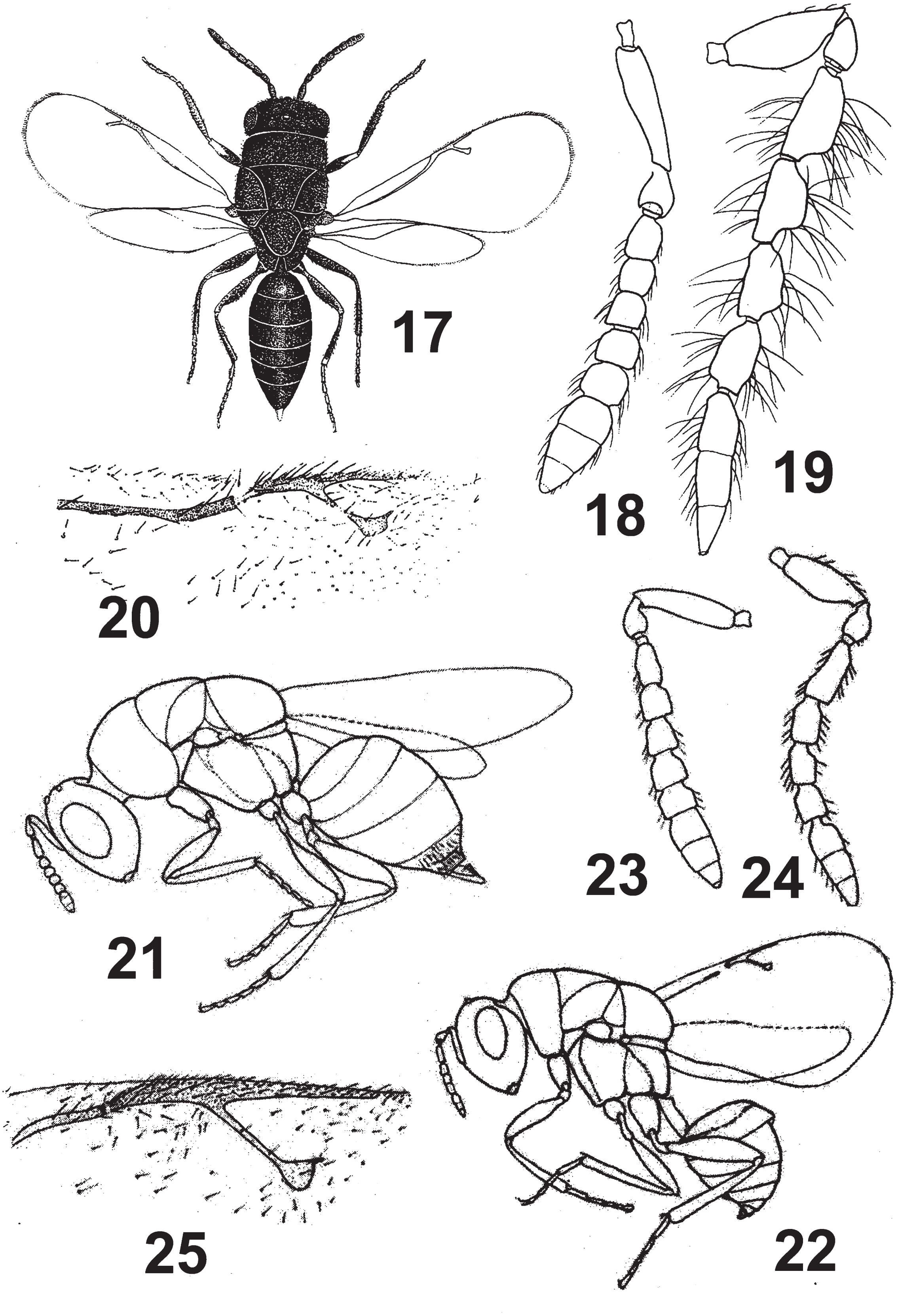
— Head and dorsal surface of thorax with dense and dull sculpture, with thick pubescence; flagellar segments in male with short pubescence, as in female (figs 21–25). .... *Parabruchophagus* Zerova, 2014



Figs 1–8. *Eurytoma amygdali* Enderlein (1, 2), *E. rosae* Nees (3–5), and *Nikanoria shohade* Zerova (6–8): 1 — female, 2, 4, 7 — male antenna; 3, 8 —female antenna, 5, 6 — forewing venation.



Figs 9–13. *Systole albipennis* Walker (9–13), *Pseudosystole hofferi* Kalina (14), and *Sycophila biguttata* (Swed.): 9, 15 — female, 10 — head of female, 11, 14 — forewing venation, 12 — male antenna, 13 — female antenna, 16 — hind tibia.



Figs 17–25. *Bruchophagus gibbus* (Boheman) (17–20) and *Parabruchophagus tauricus* Zerova (21–25): 17, 21 — female, 18, 23 — female antenna, 19, 24 — male antenna, 20, 25 — forewing venation, 22 — male.

Trophic associations and distribution of Palaearctic genera of Eurytomidae

Rileyinae

Rileya Ashmead — Entomophagous in galls of Cecidomyiidae. — South Palaearctic.

Archirileya Silvestri — Parasites of Oecanthidae. — South Palaearctic.

Buresiinae

Buresium Bouček — Parasites of some insects in stems of herbaceous plants. — South Palaearctic.

Harmolitinae

Tetramesa Walker — Phytophagous in stems and galls of Poaceae. — Palaearctic.

Tetramesella Zerova — Host not known, found in deserts. — South Palaearctic.

Aiolomorphus Walker — Phytophagous in stems of bamboo *Phyllostacis bambusoides* and *Ph. mitis*. — East Palaearctic.

Philachyra Walker — In stems of *Triticum* (Poaceae). — South Palaearctic.

Cathilatia Burks — Phytophagous in galls of Poaceae. — South Palaearctic.

Endobia Erdös — Phytophagous in stems of Poaceae. — South Palaearctic.

Eurytominae

Eurytoma Illiger — Entomophagous on many insects from 7 orders; phytophagous in seeds of Rosaceae, Pinaceae, Ephedraceae, Euphorbiaceae, Fabaceae, and stems of Poaceae and Campanulaceae. — Palaearctic.

Bruchophagus Ashmead — Phytophagous in seeds of Fabaceae. — Palaearctic.

Parabruchophagus Zerova — Phytophagous in seeds of Liliaceae (*Eremurus*). — Mountains of Pamir, Tien Shan and Crimea.

Nikanoria Nikolskaya — Parasites in galls of Cecidomyiidae, two species-phytophagous in galls of *Astragalus*. — Palaearctic.

Systole Walker — Phytophagous in seeds.

Systole (*Systole*) Walker — Phytophagous in seeds of Apiaceae. — Palaearctic.

Systole (*Pseudosystole*) Zerova — Phytophagous in seeds of Lamiaceae. — Palaearctic.

Pseudosystole Kalina — Phytophagous in seeds of Apiaceae. — Palaearctic.

Exeurytoma Burks — Phytophagous in seeds of Fabaceae (*Caragana*). — Iran, Turkey, Turkmenistan.

Eudecatominae

Sycophila Walker — Parasites of many species of Hymenoptera and Diptera. –Palaearctic.

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